

Organization and Activities of the Doctoral Program in Earth Evolution Sciences (Geological Sciences) for the Academic Year 2011

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Organization

During the year from April, 2011 to March, 2012, several promotions and appointments were made in the Doctoral Program in Earth Evolution Sciences (Geological Sciences) so that our research and teaching activities were enforced. All faculty and administrative staffs were (staffs with an asterisk * are belonging to the Doctoral Program in Integrative Environmental Sciences, but they are listed in our organization here-with, because they study geological sciences and have lectures on geological sciences for undergraduate students):

Professor:

Arakawa, Yoji, D. Sc., petrology, geochemistry and geochronology
Hayashi, Ken-ichiro, D. Sc., migration of heavy metals, geochemistry of hydrothermal system
Hisada, Ken-ichiro, D. Sc., stratigraphy, sedimentology
Kimata, Mitsuyoshi, D. Sc., mineralogy and crystallography
Sashida, Katsuo, D. Sc., Paleozoic and Mesozoic biostratigraphy

Associate Professors:

Agematsu, Sachiko, Ph.D.(Sc.), paleontology
Tsunogae, Toshiaki, Ph.D.(Sc.), metamorphic petrology and crustal evolution
Ujii, Kotaro, Ph.D.(Sc.), structural geology
Yagi, Yuji, D. Sc., seismology, structural geology
*Maruoka, Teruyuki, Ph.D., geochemistry

Assistant Professor:

*Anma, Ryo, Ph.D., structural geology and tectonics
Fujino, Shigehiro, Ph.D.(Sc.), sedimentology, stratigraphy, paleoseismology
Ikehata, Kei, Ph.D. (Sc.), petrology, resource geology
Komuro, Kosei, D. Sc., ore geology and geochemistry
Kurosawa, Masanori, Ph.D. (Sc.), mineralogy and geochemistry
Kyono, Atushi, Ph.D. (Sc.), structural physics of minerals
Takizawa, Shigeru, D. Sc., structural geology

Cooperative Graduate School System

Professor:

Takada, Akira, D. Sc., volcanology
Yamazaki, Toshitsugu, D.Sc., paleomagnetism

Associate Professor:

Ishizuka, Osamu, D. Sc., volcanic arc magmatism

Research and Teaching Assistants:

Miyamoto, Makoto
Otani, Satoshi, B.A.
Ozaki, Shiro
Shimizu, Masahiro
Watase, Koichi, B.A.

Administrative Staff:

Isaka, Kyoko
Yasuda, Yoko

Doctor and Master's Theses

The following doctor and master's theses were completed during the academic year 2011 under the supervision of the members of the Doctoral Program in Earth Evolution Sciences.

Doctor of Philosophy (Science or Geosciences)

Li, Ruiqing (2011): Taxonomic Study of the Earliest Cretaceous Spherical Radiolarians from the Mariana Trench

Master of Science or Geoscience

Master of Science

Ando, Shota (2011): Biostratigraphy and Depositional Environment of the Takinoue Formation distributed in the Hidaka area, Hokkaido.
Hanada, Yohei: Chemical formula of biotite calculated based on EMPA-WDS: Crystal chemistry and genetic significance.
Kojima, Yukiko (2012): Characteristics of the seismic source process of medium-sized earthquake around Niigata Prefecture.
Nakakoji, Tadashi (2012): Origin of clay-clast aggre-

- gates and reverse grain size segregation in fault gouge
- Ohkubo, Shun (2012): Early Miocene stratigraphy of Iwamizawa area, Hokkaido axial region collision belt
- Saitoh, Yohsuke (2012): Pressure-Temperature Evolution of High-Pressure Granulites from the Lützow-Holm Complex, East Antarctica.
- Sakai, Kazuki (2012): A hypocenter determination method with travel time difference between observation points.
- Suzuki, Mitsuru (2012): Anomalies of rupture velocity in deep earthquakes revealed by back projection method.
- Taguchi, Masaki (2012): Hypocenter determination by station reference method and application to the 2010 Chile earthquake and the 2011 Off Pacific coast of Tohoku earthquake.
- Master of Arts in Education
- Kodama, Satoko (2012): Role of protected forest at the time of tsunami invasion —— A case of Yasashigaura coast, Chiba Prefecture
- Teuchi, Shinjiro (2012) : Lithofacies and geologic structure of the Tsukuba metamorphic rocks

Research Activities

Each researcher had the following research activities during the academic year 2011.

Research projects

- Ageamtsu, S. (2012~): Response of biofacies to environmental changes in a pelagic ocean of the Panthalassa during the latest Permian to earliest Triassic period.
- Anma, R. (2002~): Structural geology and geothermochronology of accretionary prism in the Nankai trough.
- Anma, R. (2005~): Tectonic evolution of the superfast-spread oceanic crust.
- Anma, R. (2000~): Magmatism related to subduction of the Chile ridge system.
- Anma, R. (1997~): Geology of Yakushima.
- Arakawa, Y. and Shinmura, T. (2007~): Geological and geochemical studies of volcanic rocks in Aso volcano, Japan.
- Arakawa, Y., Matsui, T. and Kimata, M. (2005~): Sr isotopic and mineralogical studies of anorthite megacrysts in arc volcanic rocks.
- Arakawa, Y. (2008~): Petrological and petrochemical studies of volcanic rocks Izu arc and adjacent area.
- Fujino, S. (2011~): Sediment transportation and deposition by the 2011 Tohoku Earthquake Tsunami.
- Fujino, S. (2007~): Sediment records of paleoearthquakes and tsunamis along the Nankai Trough.
- Hayashi, K. (2009~) Oxygen isotope study of hydrothermal ore deposits.
- Hisada, K. and Tsuneki, A. (2011~): Raw materials of Paleolithic stone tools in Iran.
- Ikehata, K. (2005~): Petrological and petrochemical studies of volcanic products from active volcano.
- Ikehata, K. (2006~): Development of analytical methods for non-traditional (e.g., Cu, Fe, Zn) stable isotope ratios of materials and its applications to geochemical samples.
- Komuro, K., Hatta, T. and Shinohara, Y. (2008-2011): Effects of soil environment on the chemistry of food grains with attempts to make a counterplan.
- Komuro, K. and Ito, T. (2008-2011): Development of oxygen minimum layer in the Pacific Ocean during Neogene.
- Kurosawa, M. (2011): Single fluid-inclusion analysis using particle-induced X-ray emission (PIXE) to elucidate chemical compositions and behaviors of hydrothermal fluids from granites.
- Kurosawa, M. (2011): Trace-element analysis of pegmatite and mantle minerals by using laser-ablation ICP-MS.
- Kyono, A. (2011): Studies on a phase transition mechanism from ferrihydrite to hematite with particle size effect, and arsenic sulfide molecular diversity with Ab initio quantum chemical calculations.
- Sashida, K. (2012~): Paleozoic and Mesozoic paleoenvironmental studies in Thailand and peninsular Malaysia.
- Maruoka, T. (2009~2011) Geochemical study for understanding the environmental perturbations at the mass-extinction events.
- Tsunogae, T. and Santosh, M. (2009-2015): Crustal Evolution of the Gondwana suture zones.
- Tsunogae, T., Osanai, Y., Toyoshima, T., Owada, M., and Hokada, T. (2010-2014): Ultrahigh-temperature metamorphism in East Antarctica.
- Tsunogae, T. and Dubessy, J. (2009-2014): Characterization of fluids in high-temperature granulites: evidence from quantitative Raman spectroscopic study.

- Ujiie, K. (2007~): Field studies of the Shimanto accretionary complex and fault zones.
- Ujiie, K. (2007~): Microstructural investigations of fault rocks in the Shimanto and Nankai accretionary complexes.
- Ujiie, K. and many others (2007~): Fault zone drilling in the Nankai Trough, Costa Rica, and Japan Trench subduction zones.
- Ujiie, K. and Tsutsumi, A. (2009-): Friction experiments on subduction zone materials.
- Yagi, Y. (2010~): Introduction of uncertainty of Green's function into waveform inversion for seismic source processes.

Research grants

- Fujino, S. (2011–2015): Stratigraphic records of paleo-earthquakes and tsunamis in the last thousands of years along the Nankai Trough. Program to Disseminate Tenure Tracking System, JPY 15,000,000 for 2011.
- Hayashi, K. (2011–2013): Microscopic scale oxygen isotope study for ore and gangue minerals of hydrothermal deposits. Grant-In Aid for Scientific Research (C), JPY1,600,000 for 2011.
- Komuro, K. (2009–2011): Research and development on the chemical state analysis of mercury in ores and rocks. Project on Platform Tool Development Program for the Promotion of the Use of Marine Resources (MEXT). Contract Research Fund from AIST, JPY 183,751 for 2011.
- Komuro, K. and Nakata, M. (2011): Analysis of tellurium phases in epithermal gold deposits.
- Komuro, K., Nishido, H. and Kayama, M. (2011) Estimation of radiation damage on minerals by cathodoluminescence.
- Kurosawa, M. (2008–2011): Studies on geochemical effect of fluid-inclusion chemistries on groundwater compositions in granitic bodies. Research project, Grant-In-Aid for Scientific Research (B)
- Kyono, A. (2011–2012): Structural changes of iron oxides with nanoparticulation. Grant-in-Aid for Young Scientists (B) from JSPS (project no. 24740352).
- Sashida, K. (2011): Support innovative education project expenses, University of Tsukuba, : JPY800,000.
- Takizawa S. (2011–2013): Formation energy of fault rocks and mylonite. Japan Society for the Promotion of Science Basic Research(C)), JPY 1,400,000.
- Tsunogae, T. (2008–2011): The origin and evolution

of lower crustal fluids. Japan Society for the Promotion of Science: Basic Research (B), JPY 14,690,000.

- Tsunogae, T. (2010–2013): Tectonothermal evolution of Antarctica-India-Madagascar region and the amalgamation of Gondwana Supercontinent. Japan Society for the Promotion of Science: Basic Research (B), JPY 9,300,000.
- Ujiie, K. (2011): Grant-in-Aid for Scientific Research (B) from JSPS (21340150)
- Ujiie, K. (2011): Grant-in-Aid for Scientific Research on Innovative Areas from MEXT (21107005)
- Ujiie, K. (2011): Post-cruise study of IODP Expedition 334 from JDESC
- Yagi, Y. (2009–2012): Inversion method with data covariance matrix for seismic source process. Japan Society for the Promotion of Science: Basic Research (C), JPY 780,000.
- Yagi, Y. (2009–2012): Prediction system for slope disaster due to heavy rain and earthquake. Japan Society for the Promotion of Science: Basic Research (A), JPY 500,000.

Activity Reports for Academic Exchange and Cooperation

Chulalongkorn University, the Kingdom of Thailand

- (1) Exchange of Researchers:
Japan-India collaboration JSPS/INSA
Visitor: Dr. Santanu Bose (Assistant Professor, Department of Geology, University of Calcutta)
- (2) Exchange of Graduate Students:
Wason Kongpermpool (Tokubetsu Kenkyusei; AIEJ Short-term Student Exchange Program, 12 months from March 2011, Hisada, K.)
- (3) Collaboration Research:
none